

MANAGING HIGH BLOOD PRESSURE



Lifestyle changes and medicines
to improve your health

Why high blood pressure matters

Being told you have high blood pressure (**hypertension**) is a warning. You may feel fine now. But having high blood pressure puts you at risk of serious health problems. These can include heart attack, heart failure, stroke, and kidney disease. But you can take steps to manage high blood pressure and protect your health. This booklet will help show you how.

What is high blood pressure?

Blood pressure is the force of moving blood against artery walls. With high blood pressure, the force is too strong. This force can damage the heart and arteries and lead to health problems throughout the body. By managing high blood pressure, you can help prevent these problems.

Key points about high blood pressure

- High blood pressure is often called a silent killer. That's because most of the time it doesn't cause symptoms. In fact, many people don't know they have it until it causes other problems.
- High blood pressure is very common. Older adults are more likely to have the problem. But it can affect people of all ages and backgrounds.

►► Certain lifestyle changes can help control blood pressure. These can include healthy habits, such as walking. See page 14 to learn more about lifestyle changes.



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What you can do

High blood pressure has no cure. Once you have it, you need to manage it for life. But you can manage it. Your healthcare team will work with you to develop a treatment plan to keep it under control. This plan will likely include lifestyle changes and medicines. To get the most from your treatment:

- Learn all you can about high blood pressure, your risk factors, and treatment options.
- Visit your healthcare team as directed.
- Ask any questions you have and take part in making decisions about your treatment.
- Follow your treatment plan. Commit to making changes and forming healthy habits.

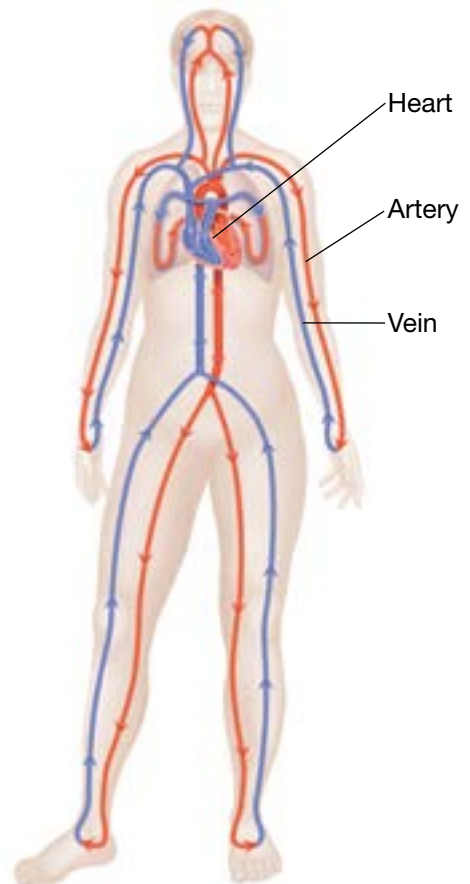


Understanding blood pressure

The **circulatory system** is made up of the heart and blood vessels that carry blood throughout the body. Your heart is the pump for this system. With each heartbeat (contraction), the heart sends blood out through blood vessels called **arteries**. Blood pressure is the force of moving blood as it pushes against the walls of the arteries.

Pressure in a connected system

Your blood vessels are a network of smoothly-lined tubes. The arteries carry oxygen-rich blood away from the heart. The blood then returns to the heart through veins. To maintain the constant flow of blood, the heart and blood vessels are all connected in a continuous loop. This means that changes in any part of the system affect blood pressure throughout the body. Below are the 3 main factors that can raise or lower blood pressure.



Force of contraction

This is the force the heart uses to pump blood. When the heart pumps blood more forcefully, the pressure in the circulatory system increases.

Tone

This refers to the ability of the smallest arteries (**arterioles**) to get wider or narrower depending on the body's needs. If certain factors make the arterioles stay narrow, blood pressure increases. This is because it takes more force to pump blood through narrower arteries.

Volume

This is the amount of blood moving through the circulatory system. The volume can change depending on how much fluid is in the blood. When the amount of fluid in the blood increases, so does the pressure inside the blood vessels.

How blood pressure is measured

A blood pressure test measures the force of blood flow against the arteries. It can be done by a healthcare team or by yourself at home. The test always gives 2 numbers: a **systolic** pressure over a **diastolic** pressure (for example, 130 over 90).

Systolic pressure

Systolic pressure is the first or top number. It measures the pressure when the heart beats and blood flow is strongest. A healthy systolic pressure reading is below 130.

Diastolic pressure

Diastolic pressure is the second or bottom number. It measures the pressure in the arteries when the heart relaxes between heartbeats. A healthy diastolic pressure reading is below 90.

Systolic measures pressure when the heart beats.

Systolic

119/79

Diastolic

Diastolic measures pressure when the heart relaxes.



When your numbers vary

It's normal for your blood pressure numbers to vary at certain times. They might be higher in the morning and lower at night. They can also change depending on your activity level or emotion. For some people, a visit to a healthcare team can make their numbers go up. So keep in mind that no single blood pressure reading is a perfect measure. The best way to learn your normal range is to check your pressure several times a week.

When blood pressure is too high

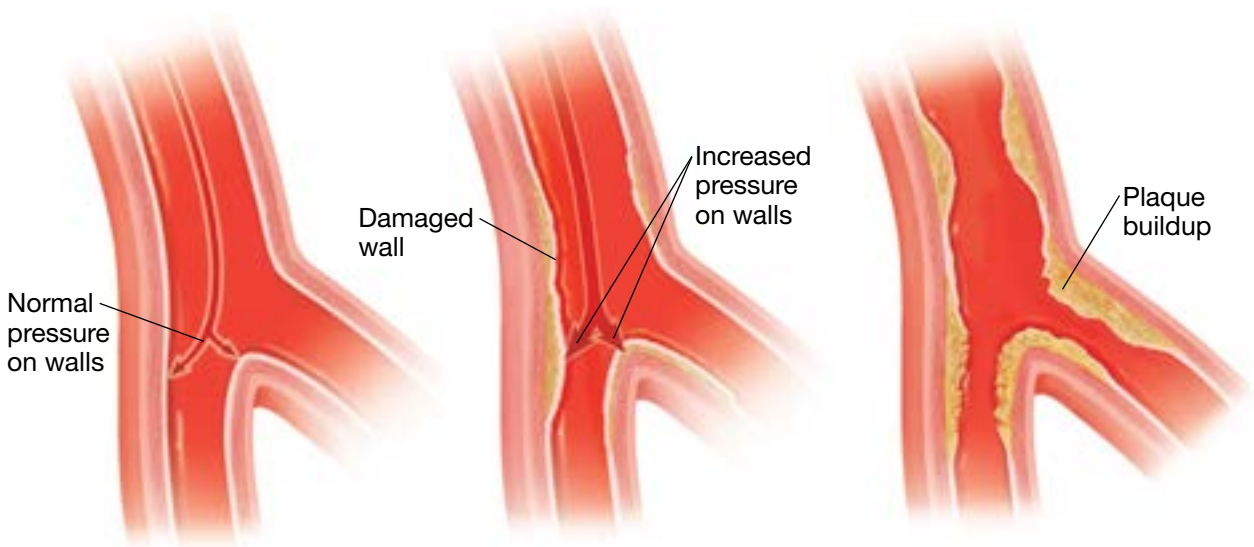
High blood pressure strains the heart. It can also damage arteries. Over time, damage to the arteries puts the whole body at risk. Blood pressure is too high when it stays at or above 130/90 most of the time.

The heart is overworked

The heart is a muscle. When blood pressure is too high, the heart has to work harder to pump blood. Over time, this hard work makes the heart muscle thicken. If the heart muscle gets too thick, it may not be able to pump blood well. This can lead to a condition called heart failure.

The arteries may be damaged

In a healthy artery, the inner lining is smooth. The force of high blood pressure can damage the lining. This makes it easier for a fatty substance called **plaque** to build up in the artery walls. Over time, plaque hardens and narrows arteries. Plaque also reduces blood flow and can allow blood clots to form.



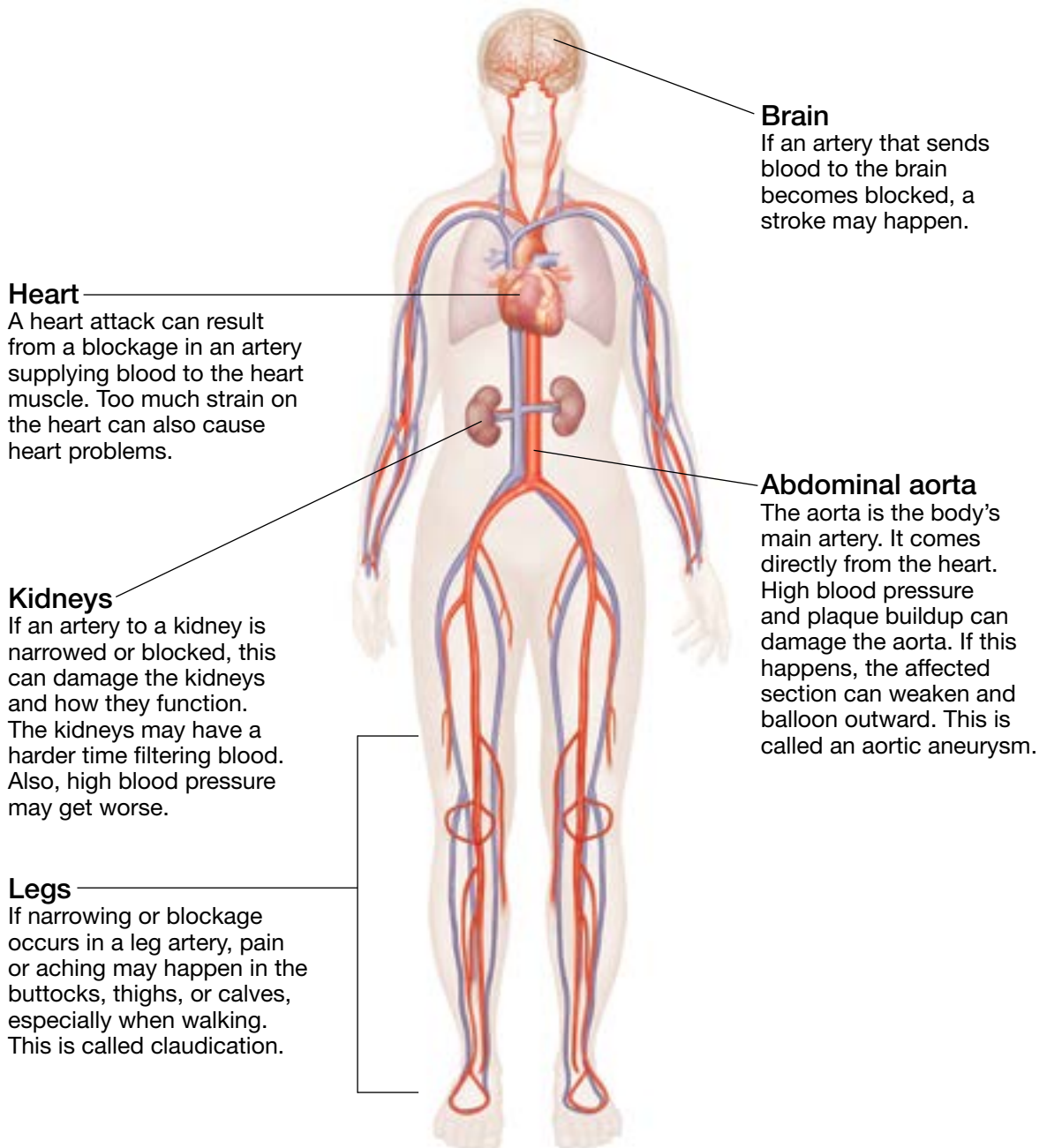
Blood flows freely through a healthy artery. The inner lining is smooth. The outer layers are flexible.

Artery walls are roughened by high blood pressure. This makes it easier for plaque to build up.

Plaque collects in the walls of the artery. This hardens and narrows the artery.

The whole body is at risk

Any artery in your body can narrow with plaque. Also, blood clots and pieces of plaque sometimes come loose and travel through the bloodstream. They may become stuck and block blood flow in other parts of the body. The damage that results may be mild, severe, or fatal. Some of the most common and serious effects of artery damage are below.



Learning about risk factors

Some health and lifestyle factors make high blood pressure more likely. Others increase the chance of problems like heart attack or stroke. The more of these factors you have, the greater your risk. This page will help you learn which risk factors you have. With this knowledge, you and your healthcare team can make a plan to improve your health.

What are your risks?

Risk factors are different for each person. Check the boxes that apply to you. You're more likely to have high blood pressure if:

Your background	Your health history	Your lifestyle
<input type="checkbox"/> Your parent, brother, or sister has high blood pressure	<input type="checkbox"/> You're overweight or obese	<input type="checkbox"/> You smoke or use other forms of tobacco
<input type="checkbox"/> You're over age 60	<input type="checkbox"/> You have diabetes	<input type="checkbox"/> You eat too much salt
<input type="checkbox"/> You're African American	<input type="checkbox"/> You have sleep apnea	<input type="checkbox"/> You rarely exercise
	<input type="checkbox"/> You have unhealthy cholesterol levels	<input type="checkbox"/> You drink too much alcohol
		<input type="checkbox"/> You're often under stress

Understanding metabolic syndrome

A group of risk factors called **metabolic syndrome** puts you at even higher risk of heart disease, stroke, and diabetes. Talk with your healthcare team if you have 3 or more of these:

- Excess weight, especially around the waist
- High level of triglycerides
- Low level of HDL
- High blood pressure
- High fasting blood sugar level

Making your treatment plan

Making the right treatment plan takes teamwork between you and your healthcare team. You may have an appointment with a dietitian to talk about your diet. Also you may have a video call with a nurse to check your blood pressure after starting a new medicine. Your plan will depend on your risk factors and blood pressure numbers. It may include:

- Taking medicines as prescribed
- Eating healthier, especially reducing salt
- Making lifestyle changes such as quitting tobacco, being more active, losing excess weight, managing stress, and limiting alcohol
- Monitoring your blood pressure at home

Setting blood pressure goals

As part of your treatment plan, your healthcare team will help you set goals for lowering your blood pressure. In general, the goal is to keep blood pressure below 130/90. But your personal goal numbers may vary depending on your age and if you have other health problems. Make sure to see your healthcare team as often as directed. This lets your team monitor your health and track how well you're managing your blood pressure.



►► You and your healthcare team will work together to make a plan to manage your blood pressure. Don't hesitate to ask questions and get the answers you need.

Taking medicines

Medicines will likely be included in your treatment plan. For your health, taking your medicines on time and as directed is essential. If you don't understand something about your medicines or have concerns, talk to your healthcare team or pharmacist. Don't let confusion, cost, or fear keep you from better health.

Types of medicine

No single medicine works for everyone to control blood pressure. So your healthcare team will likely prescribe more than 1 kind of medicine. Some types relax the heart or arteries. Others remove excess fluid from the blood.



Type of medicine	Medicine name (fill in yours)	How it works
Diuretic		Relaxes (dilates) blood vessels and helps the body get rid of excess fluid
Beta-blocker		Blocks the effects of adrenaline, so the force and rate of the heart's pumping action are reduced
Calcium channel blocker		Relaxes your arterioles, or eases the force and rate of the heart's pumping action
Angiotensin-converting enzyme (ACE) inhibitor		Relaxes arteries by reducing the body's making of angiotensin, a chemical that makes the arteries narrow
Angiotensin receptor blocker (ARB)		Relaxes arteries by reducing the effects of angiotensin
Vasodilator		Relaxes blood vessels, which makes it easier for blood to flow through the circulatory system
Alpha-blocker		Relaxes arterioles, which reduces pressure in the circulatory system
Other medicine (ask your team to fill in)		

Tips for taking medicine

- **Take ALL of your medicines.** Many blood pressure medicines work best together. Don't take 1 kind of medicine and skip another. Also be sure to take the whole prescribed dose. Don't cut pills to make them last.
- **Have a routine.** Take your medicine at the same time each day. This might be with breakfast, when you brush your teeth, or before you walk the dog. If you miss a pill, don't take 2 the next time.
- **Use reminders.** Keep medicine where you can see it. Put notes on the refrigerator or other places you'll see them. Using a pillbox can also help.
- **Plan ahead.** Refill prescriptions before they run out. Make sure to have enough medicine on hand if you travel.
- **Never change your dose or stop taking medicine on your own.** This can be dangerous. Always talk to your healthcare team before making any changes in your medicine plan.
- **Tell your healthcare team about other medicines you take.** This includes over-the-counter medicines, vitamins, herbs, and other supplements. These can react with your medicine. Some cold and flu medicines can also raise blood pressure. Ask your pharmacist.



►► A pillbox can help you remember to take the correct amount of medicine each day.

Coping with side effects

You may have some side effects when you first start taking blood pressure medicines. This does not mean you should stop taking your medicines. Instead, talk to your healthcare team. Tell them if you have side effects such as dizziness, headaches, or blurred vision. Tell them if any medicine causes urinary or sexual problems. Your healthcare team may change the amount of medicine you take. Or you may be given a different type of medicine.



Choosing a healthy diet

Eating foods that are low in salt and fat is always a good idea. But it's even more important when you have high blood pressure. Use the ideas on these pages to help you eat better.

Reducing sodium (salt)

Reducing the amount of sodium (mostly found in salt) you eat can help lower your blood pressure. Your healthcare team may tell you not to eat more than 1,500 milligrams (mg) of sodium per day. This is about half a teaspoon of salt. The tips below can help.



When shopping

- Check food labels for the amount of sodium in each serving.
- Choose fresh foods as much as possible.
- Don't eat salty foods such as canned soups and sauces, instant noodles, lunch meats, or salted snacks.

When cooking

- Don't add salt to food.
- Use fresh herbs or lemon juice as a seasoning instead of salt.
- Don't eat prepackaged spices, such as gravy and taco mix, bouillon cubes, or noodle seasoning packets.

When eating out

- Ask your waiter for your food to be made with no added salt, soy sauce, or MSG.
- Ask for broiled or baked foods. Don't eat breaded or deep-fried foods.
- Don't eat most fast foods. They are often loaded with salt.

Reducing bad fats

Reducing bad fats in your diet lowers cholesterol levels and also helps keep arteries healthy. The guide below can help:

- **Saturated fat—LIMIT.** This type of fat can raise cholesterol levels. It's found mainly in red meat, poultry skin, and full-fat milk, cheese, or butter. Eat as little of this fat as you can.
- **Trans fat—AVOID.** This type of fat is the least healthy. Don't eat foods with trans fat. Don't eat any food that has the word "hydrogenated" in its ingredients. This means trans fat.

Replace these bad fats with healthier unsaturated fats found in foods such as fish, nuts, olive oil, and avocados.



Using the DASH Eating Plan

The DASH (Dietary Approaches to Stop Hypertension) Eating Plan has been proven to help lower high blood pressure. The chart below can help get you started.*

Food group	Servings	Serving sizes	Examples
Vegetables	4-5 per day	1 cup raw leafy vegetable ½ cup cooked vegetable ½ cup vegetable juice	Tomatoes, potatoes, carrots, green peas, squash, broccoli, turnip greens, collards, kale, spinach, artichokes, green beans, lima beans, sweet potatoes
Fruits	4-5 per day	½ cup fruit juice 1 medium fruit ¼ cup dried fruit ½ cup fresh, frozen, or canned fruit	Apricots, bananas, cantaloupe, dates, grapes, oranges, orange juice, mangoes, melons, peaches, pineapples, prunes, raisins, strawberries, tangerines
Grains and grain products	6-8 per day	1 slice bread 1 oz dry cereal ½ cup cooked rice, pasta, or cereal	Whole-wheat bread, English muffins, pita bread, bagel, cereals, grits, oatmeal, unsalted pretzels, unsalted popcorn
Low-fat or fat-free dairy foods	2-3 per day	1 cup milk 1 cup yogurt 1½ oz cheese	Fat-free (skim) or low-fat (1%) milk, fat-free or low-fat cheese, and fat-free or low-fat regular or frozen yogurt
Meats, poultry, and fish	6 or less per day	1 oz cooked meats, poultry, or fish 1 egg	Select only lean meats. Trim away visible fat. Broil, roast, or boil, instead of frying. Remove skin from poultry.
Nuts, seeds, and dry beans	4-5 per week	⅓ cup (or 1½ oz) nuts ½ oz seeds ½ cup cooked dry beans or peas	Unsalted almonds, filberts, mixed nuts, peanuts, walnuts, sunflower seeds, kidney beans, lentils
Fats and oils	2-3 per day	1 teaspoon soft margarine or vegetable oil 1 tablespoon low-fat mayonnaise 2 tablespoons light salad dressing	Vegetable oil (such as olive, corn, canola, or safflower), soft margarine, low-fat mayonnaise, light salad dressing
Sweets	No more than 5 per week	1 tablespoon sugar 1 tablespoon jelly or jam ½ cup sorbet or gelatin 1 cup lemonade	Maple syrup, sugar, jelly, jam, fruit-flavored gelatin, jelly beans, hard candy, fruit punch, sorbet, flavored ices

*Serving amounts are based on a daily intake of 2,000 calories.

Making lifestyle changes

Medicines and healthy eating are important parts of managing high blood pressure. But they won't work as well unless you also make other lifestyle changes. Below are the best places to start.

Quit tobacco use

Smoking and other tobacco use damages blood vessels and raises blood pressure. For help stopping:

- Ask your healthcare team about medicines and over-the-counter products that can help you quit tobacco.
- Enroll in a quit-smoking program or join a support group.

Lose excess weight

Keeping a healthy weight can help lower blood pressure. To lose weight:

- Work with your team to set weight-loss goals and start an exercise program.
- Eat smaller portions. Fill up on fruits, vegetables, whole grains, lean proteins, and fat-free or low-fat dairy products.

Limit alcohol

Drinking too much alcohol can raise blood pressure. People assigned male at birth should have no more than 2 drinks per day. People assigned female at birth should have no more than 1 drink. A drink is equal to a beer, a glass of wine, or a shot of liquor.

Manage stress

Stress is linked to high blood pressure. To help manage the effects of stress:

- Exercise, meditate, or practice yoga.
- Do something you enjoy every day.
- Get enough sleep every night.

Be more active

Exercise helps your heart and blood vessels work better. Start small. Work up to at least 2 and a half hours of exercise each week. That could be 30 minutes a day, 5 days a week. Also:

- Choose activities you enjoy. This makes you more likely to stick with your exercise program.
- Make the most of opportunities to be active. Use the stairs instead of the elevator. Park farther from your destination and walk.



►► A brisk walk with friends can be a simple and fun way to get daily exercise.

Monitoring your blood pressure

Your healthcare team may ask you to monitor your blood pressure at home. This helps you know how well you're keeping it in control. For best results, use a digital blood pressure monitor that fits snugly around your arm. These are sold at most drugstores.

Check your blood pressure regularly

Checking your blood pressure is easy to do and takes just a few minutes. Use these tips:

- Follow all the instructions that come with your monitor. Ask your healthcare team to check the monitor to make sure it's accurate.
- Ask your healthcare team how often to check your blood pressure. You may need to test a few times a day. This helps you know your normal range.

Track your progress

Write down your numbers each time you check your blood pressure. Then bring them to appointments with your healthcare team. There are also online tools and cellphone apps that can be used to track blood pressure. Talk with your healthcare team or do an internet search to learn more. It's normal for numbers to vary over time. But call your healthcare team right away if a reading suddenly gets much higher or lower.



▶▶ Sit and relax for 5 minutes before taking your blood pressure. Rest your arm on a firm, flat surface.



Staying on track

Managing your blood pressure is a lifetime commitment. Work with your healthcare team to get the care you need. Keep in mind that even small changes can lead to improvements in your health over time. The tips below can help you stay on track with your treatment.

- **Set realistic goals.** Don't try to tackle everything at once. Start with changes that are easiest for you. Then aim for steady improvements.
- **Make changes fit your lifestyle.** Look for ways to make healthy changes part of your routine. Try a salad at lunch. Walk after dinner instead of watching TV or using the computer.
- **Get support.** Ask family or friends to join you in making healthy changes. Get together to shop for foods or prepare meals. They can also remind you when to take pills or help check your blood pressure.
- **Reward yourself for sticking with it.** When you reach a goal, give yourself a healthy reward. See a movie. Visit a museum. You've earned it!

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